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ABSTRACT

An introductory human anatomy course designed to provide the basic understanding of human structure necessary for further study in allied health and related fields is described. First, a general course description provides an overview; discusses the courses' place within the science curriculum, noting that it does not meet the general education requirements for the California State University system, but does satisfy graduation requirements for the associate of arts degree; states time assignments; and lists registration requirements. Next, information is provided on the organization and objectives of the course. Following an enumeration of terminal and long-range course goals, a course outline, a list of texts and supplies, and a list of the self-paced instructional programs required are provided. Appropriate laboratory attitudes and student and course evaluation methods are discussed next, followed by a student questionnaire. The bulk of the report outlines the goals, specific behavioral objectives, and learning activities for each of the six course units: Introduction to Human Anatomy, Axial Region, Appendicular Region, Nervous System, Thoracic Region, and Abdominal and Pelvic Region. (LL)

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# Anatomy 1

# Introduction to Human Anatomy:

# A Functional Approach

Robert M. Silverman

Santa Monica College

1983

JC 830 403

U.S. DEPARTMENT OF EDUCATION
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Introduction to Human Anatomy
A Functional Approach
Robert M. Silverman

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## Course Description

Overview:

Anatomy 1 provides the basic understanding of human structure necessary for further study in allied health and related fields. It also is applicable to the study of many areas of Life Sciences and Art. Preserved animal and human species are used extensively in this course to supplement the major instruction methods to be described later in this outline.

Curriculum:

Anatomy 1 is a credit, transferable, 4-unit course. It satisfies the prerequisits for several programs including nursing (LVN & RN), physical, occupational and respiratory therapy, chiropractic, nutrition and physical education. This course does not meet general education requirements for the State University system; however, it does satisfy graduate requirements for the Associate of Arts degree.

Time Assignments:

This class meets six hours per week ( 3 hours twice a week). This time will be roughly divided into three hours lecture and three hours laboratory activity which includes specimen dissection, microscope work, model study, etc. In addition to the six regular hours, one hour (to be arranged) will be required for study of program material in the lab or Learning Center. The hour is flexible and will not be monitored.

Students:

Each section will be comprised of 32 students. Registration in this course will be according to stated school policies. The prerequisite for this course is high school chemistry. NOTE: It may be taken concurrently. For greatest chance of success, the student should exhibit basic communication skills in reading, writing, and oral presentations.

## Notes on the Course

Introductory Anatomy is divided into six units. Each unit will consist of stated goals, objectives, and activities. At the end of each unit (except the first) there will be unit examinations which will specifically test the objectives of the unit. The overall grade will be determined by the number of objectives successfully completed.

The objectives are stated in terms of student behaviors with conditions and standards of performance specified. The number listed after each specific objective refers to the degree of accuracy which is considered adequate for minimal achievement of the objective. The testing situation will include objective, essay, and practical conditions.

The achievement of all objectives at the minimum standard of competence specified does not preclude the student's learning higher-order concepts along the way.

The course is divided into the following six units:

I Introduction to Anatomy

II The Axial Region

III The Appendicular Region

IV The Nervous System

V The Thoracic Region

VI The Abdominal and Pelvic Regions

## Course Goals

End of Course:

The student will obtain the basis for the study of other preclinical and clinical courses.

The student will correlate morphological with functional data in the study of the human organism.

The student will form a basis for problem solving in relation to both normal and disordered function.

The student will form a basis for the study of common clinical conditions.

The student will develop communication and observational skills.

The student will correlate the study and principles of Embryology, Histology, Gross Anatomy, and Functional Anatomy.

Long Range:

Of the students who enter a college or university paramedical training program, 90% will use the general and specific knowledge obtained in Human Anatomy.

Of the students who enter a college or university program, 80% will be rated by instructors as having a superior anatomy background.

Within one year after completion, in a survey of the successful completors, 80% will relate a good or superior ability to integrate basic concepts of anatomy and their studies and employment.

## Course Outline

| Unit | Date | Lecture Topic | Reading |
|---|---|---|---|
| I | 2/7 | Introduction--The Cell | Ch. 1,2 |
| | 2/9 | Tissues Of The Body | Ch. 3 |
| | 2/14 | Connective Tissue--Cartilage, Bone | Ch. 3 |
| | 2/16 | Integumentary System | Ch. 4 |
| | 2/21 | Holiday | |
| II | 2/23 | Introduction To Regional Anatomy--Axial | Ch. 5,7 |
| | 2/28 | Axial Region | Ch. 5,7,11,14 |
| | 3/2 | Exam #1--Units I & II | |
| III | 3/7 | Appendicular Region--Arthrology | Ch. 5,6 |
| | 3/9 | Upper Limb | Ch. 5,7,11,14 |
| | 3/14 | Lower Limb | Ch. 5,7,11,14 |
| | 3/16 | Lower Limb | |
| | 3/21 | Microscopic Anatomy Of Muscle | Ch. 7 |
| | 3/23 | Exam #2--Unit III | |
| | | Easter Vacation--March 28-April 3 | |
| IV | 4/4* | Introduction to Nervous System | Ch. 12 |
| | 4/6 | Central Nervous System | Ch. 13 |
| | 4/11 | Peripheral Nervous System | Ch. 14 |
| | 4/13 | Visceral Nervous System | Ch. 15 |
| | 4/18 | Visceral Nervous System | |
| | 4/20 | Review Nervous System | |
| | 4/25 | Exam #3--Unit IV | |
| V | 4/27 | Thoracic Cavity--Heart | Ch. 10 |
| | 5/2 | Circulatory System--Vessels | Ch. 11 |
| | 5/4 | Special Circulations | Ch. 11 |
| | 5/9 | Respiratory System | Ch. 18 |
| | 5/11 | Respiratory and Lymphatic Systems | Ch. 11,18 |
| | 5/16** | Review | |
| | 5/18 | Exam #4--Unit V | |
| VI | 5/23 | Digestive System--Tube | Ch. 19 |
| | 5/25 | Accessory Organs Of Digestion | Ch. 19 |
| | 5/30 | Holiday | |
| | 6/1 | Urinary System | Ch. 20 |

| Unit | Date | Lecture Topic | Reading |
|---|---|---|---|
| | 6/6 | Male Reproductive System | Ch. 21 |
| | 6/8 | Female Reproductive System | Ch. 21 |
| | 6/13 | Exam #5--Unit VI | |

* After eighth week W's will be available only to those students with a passing grade.

** After fourteenth week no W's can be given.

## Materials of Instruction

Texts and Supplies:

Text Book
Spence, Alexander P. Basic Human Anatomy

Study Manuals
Allen, B. L. Basic Anatomy (optional)
Kapit Anatomy Coloring Book (optional)

Supplements
Junqueira, Basic Histology

Supplies
Lab Coat or Apron (optional)
Gloves (optional)

## SELF-PACED INSTRUCTION

Each student is expected to sign up for one hour per week to be spent either in the Learning Center or in the laboratory studying self-paced instructional programs. A complete list of these programs is included here for your convenience.

Program 1 The Cell (Part 1)
Program 2 The Cell (Part 2)
Program 3 The Cell (Part 3)

Program 1 Tissues of the Body, Epithelial

Program 2 Tissues of the Body, Connective

Program 3 Tissues of the Body, Bone and Cartilage

Program 4 The Skin

Program 5 Glands of the Body, The Breast, etc.

Program 6 Axial Skeleton

Program 7 The Skull

Program 8 Appendicular Skeleton

Program 9 Muscles, Head, Neck, and Trunk

Program 10 Muscles, Hip and Leg

Program 11 The Heart (Part 1)

Program 12 The Heart (Part 2)

Program 13 The Cardiovascular System

Program 14 Digestive System, Mouth & Esophagus

Program 15 Digestive System, Stomach, Small Intestine, Colon

Program 16 Digestive System, Accessory Organs

Program 17 The Urinary System, Kidney

Program 18 The Endocrine Glands

Program 19 Introduction to the Nervous System

Program 20 The Nervous System, Spinal Cord

Program 21 The Nervous System, Brain

Program 22 Antonomic Nervous System and Cranial Nerves

## Laboratory Attitudes

1. Each person has an obligation to preserve an atmosphere in the laboratory that will allow for study and concentration at all times.

2. Smoking and eating is not permitted in the classroom before, during, or after class.

3. Outside visitors will not be permitted in the classroom at any time.

4. Preserved human material must not be removed from the lab at any time.

5. Orderly maintenance of work area, equipment, and supplies is expected.

6. The lab will be open for individual or group study between classes. During this time all rules for the lab will be strictly enforced.

## Evaluation

Student:

In this course there are 73 objectives. The following table will be used in assigning semester grades:

A = successful completion of 66 or more objectives
B = " " " 59-65 objectives
C = " " " 49-58 objectives
D = " " " 39-48 objectives

Course:

An evaluation form will be supplied to the student during the tenth and sixteenth weeks of the course. The results of these evaluations will be used to alter the course and make improvements.

Note:

It is estimated that 60% of beginning students will finish and be assigned a grade at the end of the semester. Students will be able to withdraw from class according to stated college policy. Note the deadlines for withdrawal on the Course Outline.

Anatomy 1

Print: _____
Last Name First Middle

Address: _____
Number Street City Zip

Home Phone: _____

Employed? _____ Where? _____

Work Phone: _____ Days & Hrs./week: _____

Have you ever been enrolled in Anatomy 1 before? _____ When: _____

Instructor: _____

What sciences have you had in high school?

What science courses have you had in college?

What professional training have you had in the past? Include when and where taken.

Present college major: _____ Past majors: _____

What is your proposed life work? _____

What school do you plan to transfer to, if any? _____

Do you now hold a degree? _____ Major? _____

In a short paragraph, state why you are taking this course. Use the back if necessary.

## Unit I: Introduction to Human Anatomy

To understand the concepts and organization of the human body, there are several requirements. First, you must understand the vocabulary and descriptive terms used in describing the body. Second, it is important to know how the body developes from a fertilized egg. Third, you must know how the body is organized beginning with the cell and going through the entire organism.

Goal 1:

You will be able to define Anatomy and its subdivisions, understand basic vocabulary, and relate terms of position to the human body.

Objectives:

1.1: In class you will define, in a 100-150 word essay, Anatomy and its subdivisions, including:

| | | |
|---|---|---|
| Regional Anatomy | Gross Anatomy | |
| Systemic Anatomy | Micro Anatomy | |
| Applied Anatomy | Pathological Anatomy | |
| Surface Anatomy | Radiographic Anatomy | 100 |

1.2: In class, given a list of 20 anatomical terms, you will match them with their correct definition and be able to apply them to a diagram of the body. 80

1.3: On a diagram of the body, you will be able to label all identifiable surface features. 80

Learning Activities: (for objectives 1.1 through 1.3)

1.1: Receive a lecture on the Introduction to Anatomy.

1.2: Read chapters 1 and 2 of textbook.

1.3: View program in Learning Center titled "Introduction to Anatomy."

Goal 2:

You will be able to trace the early development of the embryo through the first two months.

Objectives:

2.1: Given terms such as blastula fertilization, morula, cleavage gastrala, etc. you will define each in less than 20 words. 100

2.2: Outside of class you will write a 50-75 word essay explaining Bilateral Symmetry and Tubulation. 100

2.3: In a short essay (100-150 words), you will list the three germ layers and given two examples of organs derived from each. 100

Learning Activities:

2.1: Read embryology sections of chapter 1 of textbook.

2.2: Review handouts.

2.3: Receive lecture with classmates.

Goal 3:

Know and understand the cell theory and what makes up a cell.

Objectives:

3.1: In a brief, 10-20 word statement, relate the cell theory. 100

3.2: In a brief, 50-60 word statement, explain in simple terms the cell theory. 100

3.3: Given an unlabeled diagram of the cell, label each part and list its function. 80

Learning Activities:

3.1: Read in the textbook chapter 2.

3.2: View programs titled "The Cell, Parts 1 and 2."

3.3: In study groups study models provided in the classroom.

3.4: View film titled "The Cell."

Goal 4:

You will be familiar with the four major tissue types.

Objectives:

4.1: In class, each study group (4 students) will prepare an oral presentation of the characteristics of each of the four tissue types. 100

4.2: Given 20 microscopic slides you will identify the tissue type of each. 80

Learning Activities:

4.1: Read chapter 3 in textbook.

4.2: Review slides under microscope.

4.3: View programs 1, 2, 3, 4, and 5.

Goal 5:

You will understand the specific characteristics of Epithelium and Supporting tissues.

Objectives:

5.1: On a quiz in class, you will identify the specific type of epithelium illustrated on 10 slides. 80

5.2: Given five examples of epithelium, you will write in an essay (100-150 words) the major functions and locations of each. 80

5.3: In class, you will diagram and label a haversian system. 100

5.4: In class, you will write an essay (100-150 words) which illustrates five differences between bone and cartilage. 80

5.5: On a slide quiz in class, you will identify five examples of connective tissue. 80

Learning Activities:

5.1: Receive three lectures covering concepts of epithelium and supporting tissues.

5.2: View programs 1, 2, and 3.

5.3: Review slides in microscope collection.

5.4: Study demonstration in class.

5.5: Attend one review session.

Goal 6:

You will understand the structure, function, and derivatives of skin.

Objectives:

6.1: In class you will be given an unlabeled diagram of the structure of skin and a list of 12 structures. The structures will be matched with the diagram. 75

6.2: In class you will write an essay of not more than 150 words demonstrating an understanding of hair and nails as derivatives of skin. 100

6.3: In class you will write a 200 word essay describing glands including the differences between exocrine and endocrine glands. 100

Learning Activities:

6.1: Read chapter 4 of textbook.

6.2: View programs 4 and 5.

6.3: Study models available in classroom.

6.4: Look at demonstration.

## Unit II: The Axial Region

The axial region of the body encompasses the skull, vertebral column, and thorax. This region makes up the major support system of the body.

Goal 1:

You will understand the basic gross anatomic features and functional significance of the axial region of the body.

Objectives:

1.1: In the class, 15 bones of the axial region of the body will be provided with parts indicated for identification. The bones and all parts are provided on a handout titled Axial Region. You will identify the bones and indicated portions. 66

1.2: In class, each study group of students (4) will demonstrate, on the cadaver, all muscles listed on axial region handout. 100

1.3: In class, you will be presented with a series of 4 muscles (on the cadaver) from the axial region of the body. For each muscle, you will list the origin, insertion, action, and innervation. 75

1.4: In class you will identify 10 major vessels on the cadaver. 70

1.5: In class you will complete a table with name, number, and functions of the 12 cranial nerves. 75

Learning Activities:

1.1: Study the prosected specimens provided.

1.2: Listen to programs 6 and 7, and portions of 9 and 13.

1.3: Read portions of chapters 5, 7, 11, and 14.

1.4: Study handout provided.

1.5: Attend lectures on axial region.

Goal 2:

You will understand the major anatomical and clinical abnormalities involved in the axial region.

Objectives:

2.1: Given a group of four x-rays during class, you will indicate the problem. 75

2.2: During class you will write an essay explaining scoliosis, lordosis, and kyphosis. 100

Learning Activities:

2.1: During a discussion period you will observe many x-rays illustrating anatomic abnormalities.

## Unit III: The Appendicular Region

The upper and lower appendicular regions are primarily involved in body movements and support. There are great similarities between the two divisions of this region. Some of the important areas to be considered include: bones, muscles, vessels, innervations, and articulations.

Goal 1:

You will learn all the bones and parts thereof which are listed on the handouts titled Upper and Lower Appendicular Regions.

Objectives:

1.1: In a unit test during class you will identify 10 bones and all indicated parts. 65

1.2: In class you will be able to identify 10 bones on x-rays. 75

1.3: Outside of class you will write an essay of at least 150 words illustrating the differences in upper and lower limb development which accounts for differences in long-bone orientation and flexor/extensor compartment locations. 100

Learning Activities:

1.1: Read the appropriate portions of chapter 5 in text.

1.2: Do workbook pages concerned with bones.

1.3: Study x-ray demonstration.

1.4: Do program #8.

1.5: Utilize practice quizzes available.

Goal 2:

You will know the different types of joints and be able to identify functionally and clinically significant aspects of joints.

Objectives:

2.1: In class you will define in 10-20 words, and give examples of, synarthrotic, diasthrotic, and amphiarthrotic joints. 100

2.2: In class you and members of your study group will explain the anatomy of a diasthrotis joint using a rear cow leg knee joint. 100

2.3: Outside of class you will prepare a drawing including labels of all parts of the human knee joint and describe common problems such as arthritis. 100

Learning Activities:

2.1: Read chapter 5 in the textbook as it pertains to joints.

2.2: Study models of all joints in the human body.

2.3: Receive lectures on joints.

2.4: Study x-rays of joint abnormalities and replacement.

Goal 3:

You will understand the specifics of muscle anatomy histology and functional groups.

Objectives:

3.1: In class you will write 10-20 word definitions of common muscle anatomy terms such as:

| | |
|---|---|
| Origin | Epimysium |
| Insertion | Perimysium |
| Belly | Endomysium |
| Tendon | |

80

3.2: In class you will diagram a muscle myofileril sarcomere and explain the way in which shortening occurs. 80

3.3: In class you will describe in 100-150 words the differences between smooth skeletal and cardiac muscle. 80

3.4: In class you will write a 200-word essay discussing the criteria discussed in lecture to group muscles by function. 75

3.5: In class you will be able to identify 20 of the 51 muscles listed in your handouts and list their origins, insertion, action, innervation functional group, and antagonist. 75

3.6: In class you will identify 5 slides of muscle tissue. 80

3.7: In class you will define in 10-20 words:

| | |
|---|---|
| Sarcolemma | Series Elastic Element |
| Sarcoplasm | Sarcomere |
| Myofiberil | Myofilaments |

100

Learning Activities:

3.1: Study the prosected cadavers.

3.2: Receive lectures on these topics.

3.3: Complete appropriate pages in the coloring book.

3.4: Listen to programs 9 and 10.

Goal 4:

You will understand the blood supply to the upper and lower limbs.

Objectives:

4.1: In class you will label the vessels on a diagram of the upper and lower limb. 75

4.2: Outside of class you will write a 75-100 word essay explaining the difference between superficial and deep venous return using examples from the limbs. 80

4.3: Outside of class you will write a 50-75 word essay defining collateral circulation using at least one example. 100

Learning Activities:

4.1: Complete diagrams in the coloring book.

4.2: Read chapter 7.

4.3: View program 13.

4.4: Identify assigned vessels in the cadaver.

Goal 5:

You will understand the control exerted by the nervous system on the muscles.

Objectives:

5.1: In class you and the members of your group will present a 10 minute lecture explaining the innervation of one functional group of muscles including spinal cord levels, plexsuses, and peripheral nerves. 100

5.2: In class you will diagram a synapse, label all parts as discussed in lecture, and relate the significance of each part. 80

Learning Activities:

5.1: Review handouts and receive a lecture.

5.2: Complete diagrams in the coloring book.

## Unit IV: The Nervous System

The nervous system of the human body is divided into two major parts, the central and peripheral divisions. This system is the most important control system of the human body.

Goal 1:

The student will be able to distinguish the major divisions of the nervous system.

Objectives:

1.1: Given a list of terms in class you will write a 10-20 word definition of each. They will include:
Central Nervous System
Peripheral Nervous System
Autonomic Nervous System 100

1.2: In class you will write an essay distinguishing between sympathetic and parasympathetic nervous systems. 80

Learning Activities:

1.1: Receive a lecture.

1.2 Listen to the program 19.

Goal 2:

The student will understand the parts of the human brain and how they relate to each other to form systems and clinical abnormalities of each.

Objectives:

2.1: In class you will be given a list of 20 parts of the brain. For each you will write a definition by describing the function of each. 70

2.2: The list provided for objective 2.1 will be arranged into systems in class by you. Each system will then be described in a 25-40 word essay. 70

2.3: In class each study group will relate the mechanism of a common brain disorder. 100

2.4: In class you will identify the 20 major parts of the brain on plastic brain mounts. 60

Learning Activities:

2.1: Review library research and references.

2.2: Receive lecture.

2.3: View program 21.

2.4: View 16mm film titled "The Brain."

Goal 3:

The student will understand the basic anatomy and relationships of the major portions of the spinal cord.

Objectives:

3.1: You will, in class, label a diagram of the gross anatomy of a spinal cord. 70

3.2: You will, in class, label all parts of a spinal cord cross section as related in the handout. 70

3.3: You will draw circuit diagrams of the following tracts and include origin crossovers, synapses,

and target for each. 70

Learning Activities:

3.1: Receive a lecture on the spinal cord.

3.2: Complete diagram in workbook.

3.3: View program 20.

3.4: Read chapter 13.

Goal 4:

The student will understand the major components of the peripheral nervous system.

Objectives:

4.1: You will, in class, describe the formation of spinal nerves in an essay of 50 words. 100

4.2: In class you will diagram and explain the parts of the sympathetic and parasympathetic nervous systems. 70

4.3: In class you will complete a chart of the twelve cranial nerves relating number, function, and origin of each. 70

Learning Activities:

4.1: View program 22.

4.2: Receive a lecture.

4.3: Read chapters 14 and 15.

4.4: Complete the coloring book.

Goal 5:

The student will understand the basic unit of the nervous system.

Objectives:

5.1: You will diagram in class a neuron and label all parts related in lecture. 100

5.2: You will describe the function in a 100-150 word essay of the following structures:

| | |
|---|---|
| Mylin | Axon |
| Node of Ranvier | Dendrites |
| Misel Substance | Cell Body |

80

Learning Activities:

5.1: Review nervous tissue under the microscope.

5.2: Receive a lecture.

5.3: Complete workbook.

5.4: View program 19.

5.5: Read chapter 12.

## Unit V: Thoracic Region

The thoracic region of the body contains major cardiovascular and pulmonary structures. This region is surrounded by ribs and is the floor of the diaphram.

Goal 1:

The student will know the location, internal and external structures, and will be able to identify.

Objectives:

1.1: In class the student will diagram and verbally (25-50 words) describe the location of the heart. 100

1.2: In class, in a test situation, you will identify the major internal and external structures of the heart using sheep and human hearts labeled appropriately. The list of these structures is found in handouts and lecture material. 70

1.3: In class you will trace a drop of blood from the superior vena cava to the aorta by listing all structures and vessels which the drop passes through. 80

Learning Activities:

1.1: Read chapter 10 in the textbook.

1.2: Color diagrams in the workbook.

1.3: View 16mm movies on heart valves and blood circulation.

1.4: Listen to programs 11 and 12.

1.5: Study models of the heart and preserved human specimens.

1.6: Attend two lectures.

Goal 2:

The student will understand the arrangement and histology of blood vessels.

Objectives:

2.1: In class you will write a 100-150 word essay defining the three layers of blood vessels and how each layer changes with the size and type of vessel. 70

2.2: In class you will define artery, vein, arteriole, venule, and capillary by writing a 10-20 word description of each. 80

2.3: In class you will trace a drop of blood from the little toe, to the brain, to the liver, and end up at the little finger by listing all vessels and structures the vessels pass through. 70

2.4: In class you will be able to diagram and label one of the following special circulations:

1. Brain
2. Portal
3. Fetal
4. Cardiac

60

Learning Activities:

2.1: Read chapter 11 in the textbook.

2.2: Listen to program 13.

2.3: Identify vessels in the cadaver and on cat or pig.

2.4: Attend one lecture.

Goal 3:

The student will understand the major parts of the respiratory system.

Objectives:

3.1: In class you will label a diagram with the names of the respiratory system, and you will be able to identify these parts on models and cadaver. 80

3.2: In class you will write an essay to describe the histology of the respiratory system. 80

Learning Activities:

3.1: Read chapter 18.

3.2: Listen to program

3.3: Review models and cadaver.

3.4: Complete workbook.

3.5: Receive lecture.

Goal 4:

The student will understand the structure of the reticuloendothelial system.

Objectives:

4.1: In class the student will list the parts of the R.E. system and describe the structure and function of each as described in lecture. 75

Learning Activities:

4.1: Attend lecture.

4.2: Read chapter 11 in textbook.

## Unit VI: Abdominal and Pelvic Regions

Several major organs are located in the abdominal and pelvic cavities. They include the organs of digestion, urination, and reproduction. When discussing these organ systems, it is important to understand the gross anatomy, microanatomy, and functional significance.

Goal 1:

The student will understand and be able to identify the gross and microanatomy of the digestive system organs.

Objectives:

1.1: In class the student will identify the major gross features of all organs of the digestive system as related in lecture. 70

1.2: In class the student will identify 10 microscopic slides as to what part of the digestive system the tissue comes from. 70

1.3: In class the student will write a functional explanation (20-30 words) of each organ of the system. 80

Learning Activities:

1.1: Attend 2 lectures.

1.2: Read chapter 19 in the textbook.

1.3: Complete diagrams in the coloring book.

1.4: View programs 14, 15, and 16.

1.5: Review human specimens and cadavers.

1.6: Review microscopic slides.

Goal 2:

The student will understand and be able to identify the gross and microanatomy of the urinary system, including kidney, bladder, and ureter.

Objectives:

2.1: In class you will identify on the cadaver the major gross features of all organs of the urinary system as described in lecture. 70

2.2: In class the student will identify on microscope slides the major parts of the nephron and layers of ureter and bladder. 70

2.3: In class the student will write a 40-50 word essay describing the formation of urine. 70

Learning Activities:

2.1: Read chapter 20 in the textbook.

2.2: Listen to program 17.

2.3: Complete the workbook.

2.4: Attend lecture.

2.5: Study microscopic specimens.

2.6: Review preserved human tissues and cadavers.

Goal 3:

The student will be able to identify the major gross, microscopic, and functional anatomy aspects of the male and female reproductive system.

Objectives:

3.1: In class with cadavers and preserved tissues you will identify the major gross anatomy structures of the male and female reproductive systems. 70

3.2: In class you will identify and explain the significance of 5 microscopic slides of tissue from the reproductive systems of the male and female. 70

Learning Activities:

3.1: Attend lecture.

3.2: Read chapter 21.

3.3: Listen to program

3.4: Review human materials.

3.5: Study microscope slides.



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